

****ATTENTION****

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Bald Eagle

Haliaeetus leucocephalus

Range:

Breeds mainly in Alaska, Canada, the Pacific Northwest states, the Rocky Mountain states, the Great Lake states, Florida, and Chesapeake Bay. Winters over most of the breeding range, primarily from southern Alaska and southern Canada southward (USFWS 1986, AOU 1983).

Washington Distribution:

Resident near waters west of the Cascade Mountains, with scattered breeding areas in eastern Washington. Primary winter range includes the Olympic Peninsula, the San Juan Islands, Puget Sound and its major tributaries, the Cowlitz and Columbia Rivers, and Hood Canal.

Habitat Requirements:

The bald eagle is found along the shores of saltwater, and freshwater lakes and rivers. In Washington, breeding territories are located in predominantly coniferous, uneven-aged stands with old-growth components (Anthony et al. 1982). Territory size and configuration are influenced by a variety of habitat characteristics, including availability and location of perch tree for foraging, quality of foraging habitat, and distance of nests from waters supporting adequate food supplies (Watson, pers. comm.).

Breeding - Bald eagles typically build large stick nests in mature trees, which are generally used over successive years. In Washington, courtship and nest building activities generally begin in January and February. Egg-laying begins in March or early April, with eaglets hatching in mid-April or early May. Eaglets usually fledge in mid-July and often remain in the vicinity of the nest for another month (Anderson et al. 1986). On portions of the breeding range where waterways do not freeze, adult eagles may remain on the territory year-round. Juvenile eagles often drift from their nest area during winter to eventually gather at areas with concentrated food (Watson, pers. comm.).

Sizes of eagle nest trees are dictated by the forest type and tree species found within a geographic area; eagles apparently select for structure rather than tree species (Anthony et al. 1982, Anthony and Isaacs 1989). A typical nest tree is dominant or co-dominant with the overstory, and is usually live, but often has a dead or broken top with a limb structure to support the nest. The nest tree usually provides an unobstructed view of nearby water, and has stout upper branches that form flight windows large enough to accommodate the bird's large wingspan (Grubb 1976).

Bald eagle nests typically are located within the top 7m (20') of the tree (USFWS 1986). Territories may contain alternate nests. Grubb (1980) found that alternate

nest trees in territories of Washington birds were located an average of 350m (1050') from occupied nests. Although the reasons for construction of alternate nests are unclear, they may facilitate successful reproduction if the primary nest is disturbed or destroyed. Within a territory, additional snags and trees with exposed lateral limbs or dead tops are used as perches, roosts, and defense stations (USFWS 1986).

The three main factors affecting distribution of nests and territories are 1) nearness of water and availability of food, 2) suitable trees for nesting perching, and roosting, and 3) the number of breeding-aged eagles (Stalmaster 1987). Grubb (1980) found an average territory radius of 2.5km (1.6 mi.) in western Washington. However, on the lower Columbia River where productivity is low, the mean home range size and minimum distance between eagle nests were 22 km² (13.6 mi²) and 7.1 km (4.4 mi), respectively (Garrett et al. 1988). Distances between concurrently occupied territories may be important in maintaining productivity when the above factors are limiting.

Wintering - Migrant eagles begin arriving at their traditional wintering grounds during late October (Anderson et al. 1986). Wintering bald eagles concentrate in areas where food is abundant and disturbance is minimal. The birds use perches during the day, which are mainly selected according to their proximity to a food source (Steenhof et al. 1980 in USFWS 1986). Perch trees tend to be the tallest available, and preferred branches are consistently used. A variety of tree species, both alive and dead, are used for perching (Stalmaster 1976).

Wintering birds may roost communally at night near major foraging areas. Studies have shown that eagles conserve energy by roosting in protected habitat. Tree species type varies with geographic area, but communal roost stands are generally uneven-aged with a multi-layered canopy. Roosts are typically established in isolated areas in old-growth stands that have trees larger than the surrounding trees. Roost trees are apparently selected according to their height, diameter, and growth form, and for the protection they offer from wind, inclement weather, and human disturbance. Eagles may gather in staging trees located between the feeding grounds and the roost trees, prior to entering the night roost (Hansen et al. 1980, Anthony et al. 1982, Stalmaster 1987).

Feeding - Sufficient, consistent, accessible, and uncontaminated food resources may be the most critical component of winter and breeding habitat for bald eagles (USFWS 1986, Stalmaster 1987). Because eagles often depend on dead or weakened prey, their diet may vary locally and seasonally. Various carrion, including spawned salmon taken from gravel bars along wide, braided river stretches, are important food items during fall and winter (Stalmaster et al. 1985, Stalmaster 1987). Waterfowl are often taken as well, especially near hunting areas where crippled and dead birds occur (Watson, pers. comm.). Anadromous and warm-water fishes, small mammals, carrion, and seabirds are consumed during the breeding season (USFWS 1986, Anderson et al. 1986).

Activities that disturb eagles while feeding, especially during winter, can cause them to expend more energy, which increases their susceptibility to disease and poor health (Stalmaster 1987).

Limiting Factors:

Prey availability and temporal disturbances from human activities probably are most critical to bald eagle productivity and survival. Availability of suitable nesting and roosting habitat will limit distribution.

Although bald eagle populations recently have increased, cumulative habitat changes over time may confine eagles to small areas and cause gradual population decline (Stalmaster 1987).

Management Recommendations:

Under the Washington State Bald Eagle Protection Rules (WAC-232-12-292) a cooperative Site Management Plan is developed whenever activities that alter habitat are proposed near a verified nest territory or communal roost. Each Site Management Plan is based on the unique characteristics of individual eagles and their habitat, as well as surrounding land uses, in relation to the proposed activity and landowner goals.

Nests - Management strategies for bald eagles are evolving as researchers conduct more studies on eagle nesting and the effects of human activities on nesting success (fig. 1).

Anthony and Isaacs (1989) indicate that management of nest sites for older and more contiguous forests with low human disturbance will result in higher productivity. High tree density and moderate canopy closure are important to visually buffer human activities and to protect the nest and nest-tree from blowdown. Management for an uneven-sized forest dominated by Douglas fir west of the Cascades, and ponderosa pine east of the Cascades, will enhance the potential for nesting in the future. They also propose minimum nest-tree and forest stand requirements for bald eagle nest sites in three forest types. As many mature trees as possible should be maintained to ensure that forage, perch, and roost trees are protected. Large trees are also important sources for alternate nests. Selective logging may be prescribed to maintain or enhance desired characteristics of nesting or roosting habitat (Stalmaster 1987).

Human activities around nest trees during the nesting season can disturb the eagles causing abandonment or reduced reproductive success and should be avoided (Anthony et al 1982).

In Washington, Grubb (1980) found that productive nests were further from permanent human activity, an average of 120m (400'), than from unproductive nests. Fraser et al. (1985) found that eagle nests were further from the shoreline in developed areas, that nests were further from clusters of houses than random

points, and that 79% of eagles flushed from the nest at 300m (1000') at the approach of pedestrian.

In the mid-1970s the U.S. Fish and Wildlife Service (USFWS) published "Bald Eagle Management Guidelines for Oregon and Washington ". This established the buffer zone management concept (fig. 1) for protection of bald eagle nests and communal roosts. For nests they recommended an unaltered primary buffer zone of 100m (330') and a secondary zone of 200m (660') with activity timing restrictions and only minor alterations allowed.

The Pacific States Bald Eagle Recovery Plan advised that the original USFWS buffer zone guidelines be viewed as a minimum protective measure and that site specific management plans should be developed by local groups or agencies. The plan further suggests temporary restrictions during the critical nesting and wintering periods on disturbing activities such as camping, blasting, fireworks, and timber harvest within 400m (1300') of screened nests or within 800m (2600') of visible nests (USFWS 1986).

The most recent research (Anthony and Isaacs 1989), also suggests that the buffer zones proposed by the US Fish & Wildlife Service are too small and inflexible. They recommend that habitat alterations not occur within 400m (1300') of nests and that disturbing activities within 800m (2600') of nests should be time restricted. This is based on their research and Harris' (1984) work on maintaining the integrity of old-growth forest stands.

While maintaining unaltered old-growth stands may provide optimum bald eagle habitat, the necessary structural characteristics may be supplied in a properly managed forest overtime. The long term viability of nest sites in managed stands should be studied.

The Washington Department of Wildlife does not recommend standard buffer distances, but works with landowners using the flexible, territory zoning concept (fig. 1) to design site-specific management plans. The regional zoning technique (fig. 1) is used where concentrated nesting occurs.

Activities that render nesting habitat undesirable, such as logging, construction and frequent human intrusion, are restricted within the core nest area (protected area), near perch, forage and roost trees or foraging habitats. Topography and vegetation can provide screening that will minimize the impacts of disturbing activities.

Bald eagles are generally intolerant of human activities during the nesting season, but individual pairs may vary in the amount of activity that they will tolerate. In order to minimize the risks of causing a nest failure, logging, construction, camping, blasting and other activities that potentially could disturb eagles are

restricted within the buffer zone (conditioned area) from January 1 through August 15(Anderson, pers. comm., Watson, pers. comm., McMillan pers. comm., Anthony and Isaacs 1989). However, if an eagle pair has been productive with specific ongoing activities or if the nest is verified as unoccupied, these activities may be allowed to continue.

Roosts - Bald eagle communal roosts (all trees used by three or more birds on consecutive nights) also warrant a Site Management Plan. Management typically involves restricted timber harvest and road closures near winter roosts from November 1 through April 1, maintenance of a permanent buffer around core roosting areas and protection of all staging trees. Permanent developments or alterations should not occur in the core or buffer areas.

The Pacific States Bald Eagle Recovery Plan recommends temporary buffers of 400m (1300') around screened roosts and 800m (2600') around visible roosts (USFWS 1986).

Perching and Foraging Areas - Stalmaster and Newman (1978) found that 50% of wintering eagles in open areas flushed at 150m (500') but 98% would tolerate human activities at 300m (1000').

Eagles should be allowed to feed unmolested, particularly during the morning hours when they are most active. They often ground feed in open areas with concentrated food resources and need at least a 450m (1500') buffer distance from human activity and permanent structures. Timing restrictions may be needed for activities that disturb feeding eagles, such as fishing and boating. Artificial feeding may be warranted during critical winter periods when food is temporarily unavailable (Stalmaster 1987, USFWS 1986).

Leave strips of tall perch trees from 50-100m (160'-330') wide along shorelines of major feeding areas. The wider strips are recommended in areas with greater human activity. In perching areas where little screening cover is present, buffer zones of 250-300m (800'-1000') are suggested (Stalmaster 1987).

Carefully review the following activities that may impact major eagle habitat: hydro-projects, irrigation, dredging, transportation of oil and other toxic compounds, application of herbicides and pesticides, introduction of exotic species, etc.

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Key Points:

Habitat Requirements:

- Breeding - Uneven-sized forest stands with old-growth-like structural components along shorelines, and adequate food resources.
- Wintering - Day Perches: Tall trees, especially deciduous and snags, within 50m (163') of shorelines.
Night Roosts: Uneven-sized, multi-layered, mature/old-growth stands that provide protection from weather.
- Feeding - Adequate food resources including spawned salmon, carrion, and waterfowl near nesting, perching, and roosting areas.

Management Recommendations:

- Develop site-specific management plans using the flexible, territory zoning concept.
- Design a protected core area and a conditioned buffer area surrounding nesting territories and communal roosts. Consider eagle habitat use, topography, habitat fragmentation, food resources, and human activities.
- Use timing restrictions for activities that may disturb eagles during critical periods: Breeding - Jan. 1-Aug. 15 and Wintering - Nov. 1-Apr. 1.
- Avoid use of toxic biocides.
- Leave strips of perch trees along shorelines.
- Provide a buffer around major foraging areas.